REMARKS

Claims 1-15 were presented for examination. Claims 1 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,710,753 to Lockwood; claims 1, 5, and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 1,459,389 to Brown; claims 1-6, 10-11, and 13-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,478,647 to Miyamoto et al. ("Miyamoto") and claims 1-6, 8, and 10-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,685,791 to Feeney. Claims 8 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto in view of U.S. Patent No. 4,399,992 to Molitor. Lastly, claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Feeney, and claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Feeney in view of Official Notice.

Applicant hereby amends claim 1 and presents the following remarks in response to the Office action. For the reasons set forth below, Applicant respectfully submits that, in view of the amendment to claim 1 and the remarks set forth herein, claim 1 and all claims depending therefrom, are in condition for allowance and respectfully requests withdrawal of all grounds of rejection, and passage of the claims to allowance.

As an initial matter, Applicant respectfuly suggests that the flexibility that the Examiner seems to refer to in the previous Office actions is *cross-sectional* flexibility (i.e., a thinner cross section of a material is more flexible than a thicker cross section of the same material). Applicant, however, has claimed in amended claim 1, a difference in *material* flexibility (i.e., materials having the same properties display the same material flexibility, notwithstanding cross-sectional thickness; similarly, different materials display different material flexibilities, independent of the cross-sectional thickness of any given material). Accordingly, a single piece

of tapered wood, for example, would have greater flexibility at a thinner cross-section than at a thicker cross-section. Along the entire length of the piece of wood, however, the *material* flexibility would remain unchanged, as the material is identical (i.e., it is the same piece of wood). Applicant respectfully submits that the concept of material flexibility is properly supported in the specification as filed, at least in paragraph **[0022]**, where an embodiment of the disclosed lacrosse stick is described that utilizes varied concentrations of reinforcing fiber to produce a lacrosse stick with varied flexibilities along the length of the device.

Claim Reiections Under 35 U.S.C. § 102(b)

1. Claims 1 and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Lockwood. Applicant respectfully traverses the rejection as applied to the claims, as amended.

Briefly, Lockwood appears to disclose a racquet game device. The device comprises a handle and a body portion in the form of a skeletal frame composed of supporting members which take the form of round rods of wood or other material secured at one end to an end of the handle. The free outer portions of rods are received in sleeves formed on the outer ends of right and left top frame members which extend partially around the rods along the length thereof. The inner ends of the frame members are rigidly secured to the handle by fastening members such as nails (column 1, line 59 to column 2, line 4).

With respect to amended independent claim 1, Applicant submits that Lockwood does not teach or suggest a lacrosse stick including at least a head portion having a distal end and a stem portion sharing with the head frame "at least a common continuous exterior material so as to define a unitary structure, wherein the stem and head frame differ in material flexibility, and wherein at least one of the head frame and the stem is fabricated by injection molding." In

contrast, Lockwood discloses a handle secured to frame members by fastening members such as nails. Accordingly, the handle and frame members of Lockwood do not share a *common continuous exterior material*, but are at least two parts joined together. Because Lockwood does not have a "common continuous exterior material so as to define a unitary structure," Lockwood's device fails to fulfill the limitations of amended claim 1 as required by § 102(b).

It is further noted that Lockwood's device exemplifies the prior art over which the present invention improves. For example, in use, the body portion 11 of Lockwood may become detached from the handle, as is common for lacrosse sticks that have a body portion fastened to a handle. Moreover, simply because the body portion and handle of Lockwood may differ in material flexibility (as noted in the Office action), this does not render Applicant's claim 1 unpatentable. Indeed, virtually all lacrosse sticks available in the prior art have head frames with greater flexibility than the stem portions, usually because the head frame is made of a more flexible material (e.g., a thermoplastic material) than the stem material (e.g., wood, aluminum, reinforced plastic, etc.). See Specification at ¶¶ **[0004] – [0005]**. Applicant's invention, however, eliminates the problems associated with lacrosse sticks such those described in Lockwood, by teaching and claiming a lacrosse stick where "the stem and head frame differ in material flexibility," see e.g., Specification at ¶ **[0022]**, but where the use of nails or other fasteners to secure the head frame is unneccessary because the *head frame and stem share* "at least a common continuous exterior material so as to define a unitary structure." Lockwood does not teach or suggest such a lacrosse stick.

Accordingly, Applicant respectfully submits that amended claim 1, and all claims depending either directly or indirectly therefrom, namely claim 13, are patentable over Lockwood under 35 U.S.C. § 102(b).

2. Claims 1, 5, and 13 are rejected under 35 U.S.C. § 102(b) as being anticipated by Brown. Applicant respectfully traverses the rejection as applied to the claims, as amended.

Briefly, Brown appears to describe a ball catching and throwing stick or club (column 1, lines 9-11). The handle 1 and head 2 of the appliance are "preferably fashioned from a single piece of wood of the requisite length and for this purpose any tough and suitably hard wood may be employed" (column 1, lines 36-42).

With respect to amended independent claim 1, Applicant submits that Brown does not teach or suggest at least a lacrosse stick comprising a head portion having a distal end, the "distal end of the head frame being yieldably flexible" and a stem portion sharing with the head frame "at least a common continuous exterior material so as to define a unitary structure, wherein the stem and head frame differ in material flexibility, and wherein at least one of the head frame and the stem is fabricated by injection molding." Instead, Brown discloses a stock having a strip-like portion that is looped or bowed upon itself and then joined to the handle with a thong of leather; thus, Brown lacks a *common continuous* exterior material so as to define a unitary structure.

Moreover, not only is the disclosed wooden game appliance of Brown not "fabricated by injection molding," it is likely that the head would not be "yieldably flexible"; it would either break or it would not yield, as it is constructed of "tough or suitably hard wood." Also, any difference in flexibility that may exist between the head and the stem would not be due to a difference in *material flexibility*, as those two components are fashioned of the *same material* (i.e., a single piece of wood). The head of Brown may be flexible due to differing thicknesses of the piece of wood that forms both the head and the handle. This difference in flexibility however, would be due to differences in *thickness* of the material, not due to differences in

material flexibility (as suggested in the Office action). Thus, the Brown appliance fails to fulfill the requirements of the amended claim 1 as required by § 102(b).

It is further noted that Brown's device, like that of Lockwood, is less durable than Applicant's device, and is more susceptible to failure at the joint of the strip-like portion and the handle, much like devices that utilize some sort of connecting or fastening device to secure a head frame to a stem.

Accordingly, Applicant respectfully submits that amended claim 1, and all claims depending either directly or indirectly therefrom, namely claims 5 and 13, are patentable over Brown under 35 U.S.C. § 102(b).

3. Claims 1-6, 10-11, and 13-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Miyamoto. Applicant respectfully traverses the rejection as applied to the claims, as amended.

Briefly, Miyamoto appears to describe the production of a tennis racquet from a composite prepreg that contains two reinforcing fibers (abstract). The tennis racquet includes a circular frame including a ball hitting area and a shaft connected with the circular frame, the frame and shaft having a plural layer structure in which at least one layer is formed from the composite prepreg (column 1, lines 52-56). During manufacture, the strands of fibers (a), (b) that form the racket are arranged "with a certain regularity" to produce the unitary component (column 2, lines 36-44).

In contrast to the present claims, however, Miyamoto does not teach or suggest at least constructing a tennis racket, let alone a lacrosse stick, in such a manner as to produce a head portion having a distal end, the "distal end of the head frame being yieldably flexible" and a stem portion sharing with the head frame "at least a common continuous exterior material so as to define a unitary structure, wherein the stem and head frame differ in material flexibility, and

wherein at least one of the head frame and the stem is fabricated by injection molding." Instead, Miyamoto indicates that the obtained tennis racquet is light and tough and suitable in flexibility, but due to the "certain regularity" with which the strands are arranged, it appears to be of consistent flexibility throughout.

Amended claim 1, in other words, requires a flexible portion and a rigid portion. Miyamoto, by contrast, uses the same material throughout his construction and therefore obtains a racquet having a rigidity that does not vary. He does not even suggest the desirability of flexibility at one end and rigidity at the other end, much less provide any teaching as to how one might achieve this contrast in physical properties.

Moreover, Miyamoto does not teach manufacturing any portion of the disclosed tennis racket by *injection molding*, contrary to the statements regarding the rejection of claim 6 in the Office action. Miyamoto teaches manufacturing a tennis racket by winding one or more prepregs around a core and then heating it in a mold. (column 2, lines 61-65). Indeed, utilizing injection molding to form the racket of Miyamoto would prevent the strands of fibers (a), (b) that form the racket from being arranged "with a certain regularity " to produce the unitary component. (column 2, lines 36-44). Thus, Miyamoto does not teach or suggest a lacrosse stick having a head frame wherein "the distal end of the head frame is yeildably flexible," and wherein the head and stem share "a common continous exterior material so as to define a unitary structure," wherein those same components differ in material flexibility and at least one component is manufactured by injection molding.

Accordingly, Applicant respectfully submits that amended claim 1, and all claims depending either directly or indirectly therefrom, namely claims 2-6, 10-11, and 13-15, are patentable over Miyamoto under 35 U.S.C. § 102(b).

4. Claims 1-6, 8, and 10-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Feeney. Applicant respectfully traverses the rejection as applied to the claims, as amended.

Briefly, Feeney appears to describe a lacrosse stick head comprising a tube with a generally oval-shaped cross section with a length shaped into a closed loop head (abstract). The head is secured to the handle with a screw which keeps the head and handle together during operation (column 3, lines 51-53). Feeney also indicates that it is possible to use appropriate designs and tooling variations in the *cross-section* of the head along the length thereof to allow for the optimizing of the properties of the head along its length as for stiffness, durability and the like (column 4, line 65 – column 5, line 2). In the embodiment noted by the Examiner, the head and handle are formed and molded from a single tube much as racquetball rackets are fabricated (column 5, lines 12-14).

Feeney fails to anticipate the amended claim 1 for the reasons set forth above with respect to Miyamoto. Like Miyamoto, Feeney uses the same material throughout his construction, advocating "forming and molding the head and handle from a single tube." (Column 5, lines 12-13.) And like Miyamoto, he therefore obtains a device having a rigidity that does not vary. Feeney does not even suggest the desirability of flexibility at one end and rigidity at the other end, much less provide any teaching as to how one might achieve this contrast in physical properties. The only flexibility taught by Feeney relates to flexibility dependent on the thickness of the cross section, not material flexibility based on differences in material properties.

Also, contrary to the statements regarding the rejection of claim 6 in the Office action, Feeney does not teach manufacturing a lacrosse head "wherein at least one of the head frame and the stem is fabricated by injection molding." Instead, Feeney teaches manufacturing a lacrosse

stick from a single article utilizing first resin-impregnated fibers wrapped around a mandrel and an optional tubular bladder. (Column 4, lines 5-21). The mandrel is then removed and the resulting tube is bent into the desired position and placed in a mold. (Column 4, lines 33-36). The bladder is then either pressurized by air or filled with a heat expandable foam, and the mold is cured and the final product generated. (Column 4, lines 36-46). Thus, while Feeney may teach a lacrosse stick where the head and stem comprise a unitary structure and common exterior material, Feeney lacks the additional elements of Applicant's amended claim 1, namely differences in *material flexibility* of the head and stem and wherein the head and stem are made by injection molding.

Accordingly, Applicant respectfully submits that amended claim 1, and all claims depending either directly or indirectly therefrom, namely claims 2-6, 8, and 10-15, are patentable over Feeney under 35 U.S.C. § 102(b).

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 8 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyamoto in view of Molitor. Claim 7 is rejected under the same section as being unpatentable over Feeney. Similarly, claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Feeney in view of Official Notice. Applicant respectfully traverses the rejection and submits that claims 7, 8, 9, and 12 are patentable, since they depend, directly or indirectly, from patentable independent claim 1, as amended.

Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration, withdrawal of all grounds of rejection, and allowance of claims 1-15 in due course. The Examiner is invited to contact Applicant's undersigned representative by telephone at the number listed below to discuss any outstanding issues. Please charge any fee occasioned by this paper to our Deposit Account No. 07-1700 with reference to docket number QKL-001.

Respectfully submitted,

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Reg. No. 51,842

Andrew D. Jagenow, Esq.
Attorney for Applicant
Goodwin | Procter LLP
Exchange Place
Boston, Massachusetts 02109

Tel. No.: (617) 570-1905
Fax No.: (617) 523-1231